

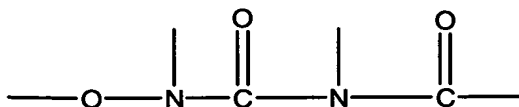
REMARKS

Claims 1-21 are pending in the current application. Claims 12-14 and 21 are cancelled herewith. Claim 11 is amended to indicate that the polyisocyanate product produced by the claimed process has the specified amounts of allophanate, uretdione, urethane and oxadiazinetriane groups. No new matter is added; support for this amendment can be found on page 8, lines 15-19, of the application as filed.

Rejections under 35 U.S.C. §112

Claims 1-21 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement, for use of various terms in the claims. Claims 12-14 and 21 have been cancelled, obviating the §112 (both first and second paragraph) rejection of these claims.

First, it is asserted that the language "which carries at least one acrylate, methacrylate or vinyl ether double bond on the oxygen atom of the allophanate group" is inadequately defined, and that it is unclear what structures are encompassed by "carries". Applicants respectfully submit that the plain language of the claim makes it clear that it is the oxygen atom bonded by two single bonds, present in the allophanate group, which carries the at least one acrylate, methacrylate or vinyl ether group. An allophanate group has the following structure:



There is only one oxygen atom in the allophanate group which is bonded by two single bonds and which can therefore carry an additional group. The double bond-containing group is attached to this oxygen. Thus, one skilled in the art would understand the intended structure from the language of Claim 1, as written. Applicants respectfully submit that this language meets the requirements of §112, first paragraph.

Claim 11 has been amended to indicate that Y is an —OR radical, and thus the structures X-1 and X-2 are now linked to the carbonyl group through an oxygen atom.

Claims 1-21 are rejected under 35 U.S.C. §112, second paragraph, as indefinite for the use of various terms. The first and second objections under this rejection (page 2, paragraph 2 of the office action) have been addressed above.

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Claim 17 is objected to for use of the language "below in N position, "modelling the two isocyanate groups" and "small amounts". Applicants assume that Claim 16 is intended, as Claim 17 does not include this language.

The language of Claim 16 has been rewritten to clarify that ¹A and ²A refer to the isocyanate or isocyanate secondary product structure (e.g., iminooxa-diazinedione, isocyanurate, uretdione, urethane, allophanate, biuret, urea or oxadiazinetriene groups) in the polymer, and ¹B and ⁿ⁺¹B refer to the aliphatic, cycloaliphatic or araliphatic portion of polymer, which are based on the structures of the starting materials used. No new matter is added; one skilled in the art would understand this was the intended reading of the claim from the description of starting materials used.

Applicants respectfully submit that the term "small amounts" in Claim 16 is not indefinite in the context of the present invention, which is directed to low-viscosity dual-cure polyisocyanates. One skilled in the art would recognize that the addition of large amounts (e.g., amounts over 20 wt.%) of the listed groups would result in a composition that would not be low in viscosity. Ranges for some of the listed groups in the end product are provided in Claim 11; additional large amounts of the other groups listed would result in an end product with undesirable properties, as would be understood by one skilled in the art.

Applicants respectfully submit that Claims 1-11 and 15-20 meet all requirements of §112 of the statute; accordingly, all §112 rejections should be withdrawn.

Double Patenting Rejections

Applicants submit herewith a Terminal Disclaimer over Application Serial Nos. 11/080,176; 11/080,706 and 11/217,207, to obviate the double patenting rejections. Applicants request withdrawal of this basis of rejection.

Rejections under 35 U.S.C. §102/103

All claims are commonly owned, by virtue of an assignment dated August 6-11, 2003, assigning all rights in the invention to Bayer AG, Leverkusen, Germany, and recorded in the United States Patent and Trademark Office on September 29, 2003, at Reel/Frame 014554/0775.

Claims 11, 15 and 17-19 are rejected under 35 U.S.C. 102(b) as anticipated by CA 2356685 (referred to herein as "BASF"); Claims 12, 16, 20 and 21 are also rejected under 35 U.S.C. 102(b) as anticipated by the BASF reference, or alternatively, under §103 as obvious in view of this reference. Applicants respectfully traverse this rejection as it may pertain to amended Claim 11, and the claims which depend from Claim 11, namely, Claims 15-20. The rejection of Claims 12 and 21 under 35 U.S.C. §103 is moot in view of the cancellation of these claims.

The BASF method of producing allophanates having activated double bonds is a standard method in which a double bond-containing alcohol is reacted with excess isocyanate to produce a urethane, which is further reacted with alcohol to produce the allophanate. The excess isocyanate must be distilled off, using heat and vacuum. However, heat causes production of radicals which can react with the double bonds, and a stabilizer must be added to prevent this. In practice, the BASF composition is difficult to make and gels during formation.

In contrast, in the method of the present invention, oxadiazinetriene is reacted with an alcohol containing an activated double bond and directly forms the allophanate. No distillation, no heat and no vacuum are required to make the product.

As reflected in Claim 11, the polyisocyanate product produced by the process of the present invention comprises 2-35 wt.% allophanate groups, 0.1-5 wt.% uretdione groups, 0-5 wt.% oxadiazinetriene groups and 0.1-25 wt.% urethane groups. These ranges result in the product when isocyanate starting materials are used. When the starting materials are uretdiones, urethanes, ureas, isocyanurates, allophanates, biurets or other nucleophilic addition products of isocyanates, then the weight % of the particular group will be higher, depending on the starting material used.

The BASF reference does not teach a polyisocyanate product having the ranges of allophanate, uretdione, oxadiazinetriene and urethane groups in the end product, as recited in Claim 11, and therefore does not anticipate Claims 11 and 15-20. Moreover, BASF uses a different process to produce the polyisocyanates disclosed therein, the process of BASF cannot inherently result in the products produced by the present invention, as recited in Claim 11. At page 4, lines 6-8, the

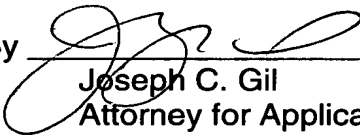
BASF reference states that the compounds of that invention are essentially free from uretdione, biuret or isocyanurate groups. The BASF reference does not describe the use of any starting material other than customary aliphatic or aromatic di- or polyisocyanates. Therefore, there is no overlap of the compounds of the present invention with the compounds disclosed in BASF.

Applicants respectfully submit that Claims 11 and 15-20 are not anticipated by, nor rendered obvious by, the BASF reference. Withdrawal of the §§102/103 rejections is respectfully requested.

SUMMARY

Applicants respectfully submit that all outstanding issues have been addressed, and that Claims 1-11 and 15-20 are in condition for allowance. A notice of allowance is requested at an early date.

Respectfully submitted,

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